

REMARKS

Entry of the foregoing, re-examination and reconsideration of the subject matter identified in caption, as amended, pursuant to and consistent with 37 C.F.R. § 1.111, and in light of the remarks which follow, are respectfully requested.

Claim 1 has been amended to correct a typographical error therein. Upon entry of the Amendment, claims 1-16 will be all the claims pending in the application.

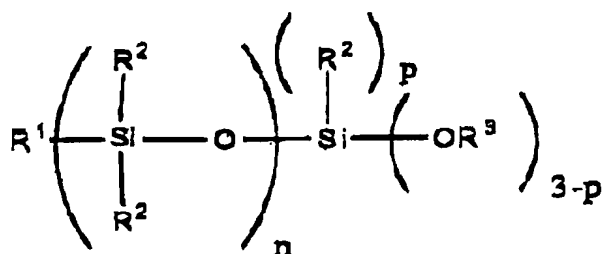
I. Response to Rejection under 35 U.S.C. § 102(b)

Claims 1-3, 6-10 and 13-16 were rejected under 35 U.S.C. § 102(b) as being anticipated by Japanese Patent Document No. JP 10-273,644 (JP '644).

Applicants respectfully traverse the rejection for the following reasons.

Claim 1 recites a one-component liquid crystal sealing composition comprising (1) an alkoxysilyl group-containing modified epoxy resin obtained by de-alcohol condensation reaction of (a) an epoxy resin having at least one hydroxyl group in one molecule and (b) an alkoxysilyl group-containing compound represented by formula (2):

[Formula 2]



wherein R¹ represents a C1 to C8 alkyl group, a phenyl group or a C1 to C8 alkenyl group, each of which may have a C1 to C8 alkoxy group, vinyl group, acryloyl group, methacryloyl group, carboxyl group, epoxy group, glycidyl group, amino group and mercapto group, R² represents a C1 to C8 alkoxysilyl group, a C1 to C8 alkyl group or a phenyl group, R³ represents a C1 to C8 alkyl group, n is an integer of 0 to 6, and p is an integer of 0 to 2, (2)

a heat latent epoxy curing agent and (3) a filler having an average particle diameter of 0.1 to 10 μm .

As described in the specification, the composition as defined in claim 1 can provide unexpected results by containing an alkoxysilyl group-containing modified epoxy resin. Specifically, compositions of Comparative Examples C2 and C3 contain a mixture of liquid bisphenol A epoxy resin (Epomic R140P) and γ -glycidoxypopyl trimethoxysilane (KBM403), instead of the alkoxysilyl group-containing modified epoxy resin employed in Examples P1-P5 in Table 1 at page 29 of the specification.

It is obvious from the test results in Table 2 of the specification that sealing compositions of Examples P1-P5 are superior in adhesiveness and heat resistance, as compared to those of Comparative Examples C2 and C3.

JP '644 discloses a liquid crystal sealing composition comprising:

- (a) a liquid epoxy resin such as bisphenol A epoxy resin;
- (b) a curing agent consisting of a novolak resin having a softening point of 75° C or less as determined by a ball and ring method;
- (c) a filler having a particle diameter of 10 μm or less; and
- (d) a curing accelerator that can be a heat latent curing accelerator (claim 8),

wherein a mixture of components (a) and (b) is liquid or has a softening point of 50°C or less as determined by a ball and ring method.

Specifically, JP '644 discloses at paragraph [0044], a sealing composition consisting of liquid bisphenol A epoxy resin as an epoxy resin, phenol novolak resin having a softening point of 50°C as a curing agent, propylene glycol monoethyl ether acetate as a solvent, a mixture of silica and alumina as a filler, 2MAOK-PW as a curing accelerator and N-phenyl- γ -aminopropyl trimethoxysilane as a coupling agent.

However, JP '644 fails to disclose a sealing composition including an alkoxysilyl group-containing modified epoxy resin, which is obtained by de-alcohol condensation reaction of (a) an epoxy resin having at least one hydroxyl group in one molecule and (b) a specific alkoxysilyl group-containing compound as defined in present claim 1.

As described at page 9, line 8 to page 9, line 23, of the specification, the alkoxysilyl group-containing modified epoxy resin recited in claim 1 is prepared by mixing (a) an epoxy resin having at least one hydroxyl group in one molecule and (b) a specific alkoxysilyl group-containing compound, and reacting them under heating at 50 to 130°C for about 1 to 24 hours in the presence of a conventionally known accelerator such as dibutyltin dilaurate while distilling a by-product alcohol away simultaneously. See, also, JP 2001-059013 paragraphs [0022]-[0023] and Examples 1-5; JP 2002-12818 paragraphs [0017]-[0018], and Examples 1-3; and JP 2001-059011 paragraphs [0024]-[0025] and Examples 1-7, of which JP 2001-059011 is described at page 9, line 7, of the present specification.

Applicants advise that a mere mixture of liquid bisphenol A epoxy resin and a coupling agent, such as N-phenyl- γ -aminopropyl trimethoxysilane as disclosed by JP '644, would not yield an alkoxysilyl group-containing modified epoxy resin as defined in present claim 1.

Further, as noted above, a composition containing an alkoxysilyl group-containing modified epoxy resin is superior to that containing a mere mixture of bisphenol A epoxy resin and γ -glycidoxypropyl trimethoxysilane.

In view of the foregoing, Applicants respectfully submit that claim 1 is not anticipated, or rendered obvious, by JP '644, and thus the rejection should be withdrawn. In addition, claims 2, 3, 6-10 and 13-16 depend from claim 1, directly or indirectly, and thus are novel and unobvious over JP '644 at least by virtue of their dependency.

II. Response to Rejection under 35 U.S.C. § 103(a)

Claims 4, 5, 11 and 12 were rejected under 35 U.S.C. § 103(a) as being obvious over JP '644 in view of U.S. Patent No. 6,652,962 to Sato et al.

Applicants respectfully traverse the rejection for the same reasons as set forth above.

In addition, Sato et al. is relied upon merely as disclosing that dicyandiamide, an imidazole, an aromatic amine, phenol novolak resin or cresol novolak resin is used as the heat latent curing agent (column 6, lines 12-14), and thus does not rectify the deficiencies of JP '644.

Accordingly, even if Sato et al. and JP '644 are combined, as suggested by the Examiner, the combination still would not result in the subject matter of claims 4, 5, 11 and 12.

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

III. Conclusion

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned at (202) 452-7932 at his earliest convenience.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

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By: _____



Fang Liu, Ph.D.
Registration No. 51283